Test Report

Client Name	:	SHENZHEN XUANCAI ELECTRONIC CO.,LTD
Address	:	F Building MAOYUAN Industrial Park, XIAWEI Industrial Zone, GUANLAN Street, LONGHUA New DISE SHENZHEN, GUANGDONG, China
Product Name	:	4046 50W COB
Date	:	2019-08-22

Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

Report No.:	PCANL190802006-01
Product Description:	4046 50W COB
Model No.:	XC4624-M1010-A3080-F31
Test Initiation Date:	2018-07-14
Test Completion Date:	2019-08-16
Test Standard:	IES LM-80-15
Test Laboratory:	Shenzhen Anbotek Pengcheng Compliance Laboratory Limited
Testing location:	Zone B, 1/F., Building 2, Hengchangrong High Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

Tested by **Reviewed by**

Lenin Ye / Lenin Ye Flora Zhang/ Flora Zhang

Anbotek (PCA) Compliance Laboratory Limited * Approved *

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotek Pengcheng Compliance Laboratory Limited. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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1 General Information

1.1 Product Description for Device under Test (DUT)

Part Number:	XC4624-M1010-A3080-F31
Part type:	COB Package
Nominal CCT:	3000K
Nominal CRI:	80
Nominal Input Power(W):	50W
Mean Initial Forward Voltage(V):	30V
Nominal LED Die Area(mm^2):	0.392 mm^2
Average Current per LED Die(mA):	150 mA
Average current density per LED Die(mA/mm^2):	382.653 mA/mm^2
Average power per LED Die(W):	0.5 W
Average power density per LED Die(W/mm^2):	1.276 W/mm^2
Minimum Spacing from Die Edge to Die Edge(mm):	1.2 mm

Family products covered by this report:

According to ENERGY STAR® Requirements for the Use of LM-80 Data, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of ENERGY STAR® Requirements for the Use of LM-80 Data (September 28, 2017)

This report covers the following models:

4046 50W COB，4046 40W COB，4046 30W COB，4046 20W COB

CCT: 3000K, 3500K，4000K，5000K，6000K，6500K.

1.2 Standards Used

IESNA LM-80-15: IES Approved Method for Measuring Luminous Flux and Color Maintenance of LED, Arrays and Modules.

ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products (This test method was not accredited by NVLAP)

1.3 Test Facility Description

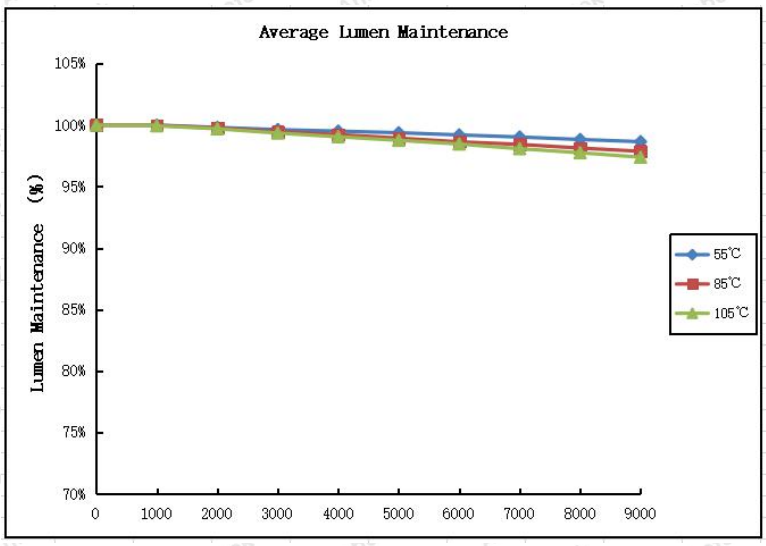
The test facility used by Shenzhen Anbotek Pengcheng Compliance Laboratory Limited is located at Zone B, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

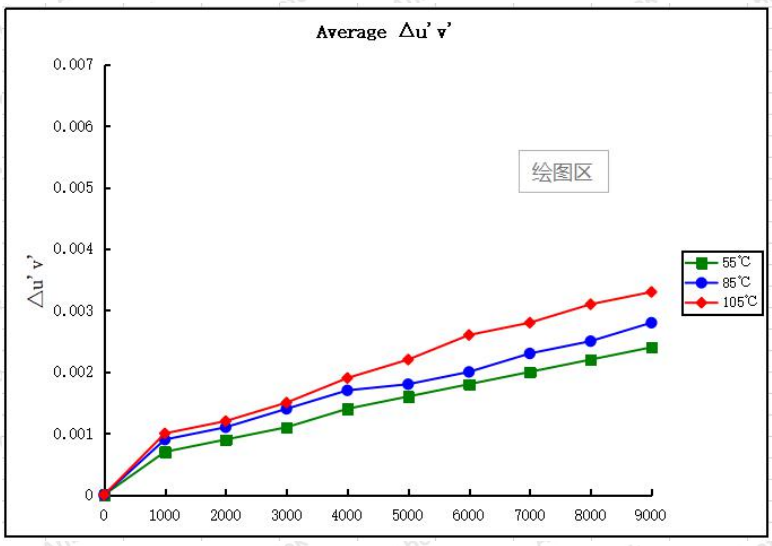
1.4 Test Equipment List

Device	Manufacture	Model No.	Serial No.	Calibration Date	Calibration Due Date
Digital Power Meter	YOKOGAWA	WT210	SE-074	2019-06-06	2020-06-05
LM-80 Aging Test System	KEYI	KY-3X-LH60	SE-564	2019-06-06	2020-06-05
DC Power Supply	EVERFINE	WY605	SE-605	2019-06-06	2020-06-05
Standard Lamp	EVERFINE	D062	SE-606	2019-06-06	2020-06-05
Spectrum Analyzer	EVERFINE	HAAS-2000	SE-607	2019-06-06	2020-06-05
Integrating Sphere (0.5m)	EVERFINE	AIS-2	SE-608	Before use	Before use

2 Summary of Test Result

Data Set	1	2	3
Nominal case temperatures	55°C	85°C	105°C
Drive Current	1500 mA	1500 mA	1500 mA
Condition	Ts=54.9°C Ta=54.6°C R.H.＜65% IF=1500 mA	Ts=84.8°C Ta=84.5°C R.H.＜65% IF=1500 mA	Ts=104.8°C Ta=104.4°C R.H.＜65% IF=1500 mA
sample size	25	25	25
Duration (in Hours)	9000	9000	9000
Intervals (in Hours)	1000	1000	1000
Failures Observed	0	0	0
Average Lumen Maintenance at 9000h	98.65%	97.87%	97.39%
Average Chromaticity Shift at 9000h	0.0024	0.0028	0.0033
α	1.765E-06	2.737E-06	3.406E-06
β	1.002	1.003	1.004
Reported L_{70}(9000h) TM-21 Lifetime	>54000	>54000	>54000
Reported L_{80}(9000h) TM-21 Lifetime	>54000	>54000	>54000
Reported L_{90}(9000h) TM-21 Lifetime	>54000	40000	32000





3 Test Method

3.1 Photometric and Electrical Measurement

Total light output (luminous flux) for the 25°C±1°C ambient temperature conditions is measured using a integrating sphere. Each LED is operated at rated drive current (DC Mode).

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed±1.6% over the wavelength range 380-800nm.

3.2 Season the LED from 0 hours to 9000 hours

Three LM-80 aging measurement system Temperature Chambers are using for Seasoning, and the temperature is set to 55°C, 85°C, 105°C (manufacture defined), the airflow is minimum to keep the uniformity to temperature. LED are operated steady state (no cycling) for a period of 9000 hours, checked the lumen flux and Chromaticity Shift every 1000 hours. The samples are inspected at regular intervals (24 hours) throughout the 9000 hours. The time and date of failure of each lamp is recorded. The actual elapsed time for each light LED is in hour.

4 Test Data

4.1 Data Set 1: 55°C, 1500 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	54.9°C
Ambient Temperature:	54.6°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L1	30.23	6564.7	99.99%	99.76%	99.63%	99.51%	99.39%	99.17%	99.08%	98.82%	98.70%
L2	30.54	6559.3	99.99%	99.83%	99.64%	99.48%	99.40%	99.16%	98.97%	98.88%	98.60%
L3	30.11	6576.5	100.00%	99.83%	99.62%	99.52%	99.37%	99.25%	98.96%	98.83%	98.62%
L4	30.29	6586.6	100.00%	99.82%	99.60%	99.49%	99.32%	99.16%	99.05%	98.85%	98.61%
L5	30.55	6593.9	99.99%	99.79%	99.60%	99.49%	99.35%	99.21%	99.01%	98.76%	98.69%
L6	30.32	6558.7	100.01%	99.84%	99.62%	99.51%	99.42%	99.28%	99.10%	98.89%	98.70%
L7	30.09	6570.8	99.99%	99.73%	99.61%	99.47%	99.36%	99.16%	99.06%	98.87%	98.71%
L8	30.13	6568.1	100.00%	99.83%	99.62%	99.53%	99.42%	99.16%	99.00%	98.80%	98.67%
L9	30.47	6592.2	99.98%	99.81%	99.63%	99.53%	99.39%	99.19%	99.05%	98.82%	98.69%
L10	30.68	6573.6	99.99%	99.75%	99.65%	99.54%	99.33%	99.24%	99.01%	98.81%	98.61%
L11	30.15	6584.7	100.02%	99.85%	99.66%	99.50%	99.37%	99.20%	99.08%	98.88%	98.59%
L12	30.74	6595.5	100.01%	99.74%	99.63%	99.53%	99.38%	99.26%	99.06%	98.84%	98.62%
L13	30.06	6557.4	100.00%	99.82%	99.67%	99.52%	99.41%	99.24%	99.07%	98.81%	98.60%
L14	30.29	6578.9	100.02%	99.79%	99.63%	99.49%	99.41%	99.23%	99.03%	98.77%	98.71%
L15	30.47	6564.3	99.98%	99.84%	99.62%	99.54%	99.36%	99.22%	99.01%	98.80%	98.62%
L16	30.34	6579.7	99.99%	99.85%	99.68%	99.55%	99.41%	99.16%	99.02%	98.77%	98.71%
L17	30.63	6595.6	100.01%	99.77%	99.59%	99.51%	99.36%	99.23%	99.08%	98.88%	98.62%
L18	30.56	6581.5	100.02%	99.84%	99.64%	99.53%	99.40%	99.28%	99.06%	98.87%	98.64%
L19	30.75	6592.7	99.98%	99.81%	99.66%	99.48%	99.42%	99.17%	98.99%	98.79%	98.60%
L20	30.08	6587.1	99.99%	99.75%	99.61%	99.50%	99.37%	99.17%	98.98%	98.80%	98.61%
L21	30.21	6554.4	99.99%	99.82%	99.64%	99.50%	99.40%	99.17%	98.98%	98.87%	98.67%
L22	30.42	6575.7	99.99%	99.83%	99.64%	99.50%	99.38%	99.16%	98.97%	98.87%	98.62%
L23	30.52	6586.3	100.00%	99.83%	99.61%	99.49%	99.37%	99.18%	99.00%	98.84%	98.62%
L24	30.48	6557.9	99.99%	99.82%	99.60%	99.49%	99.33%	99.21%	99.04%	98.78%	98.62%
L25	30.37	6569.5	100.00%	99.83%	99.62%	99.49%	99.41%	99.27%	99.04%	98.77%	98.69%
AV	**30.38**	**6576.22**	**100.00%**	**99.81%**	**99.63%**	**99.51%**	**99.38%**	**99.20%**	**99.03%**	**98.83%**	**98.65%**
Median	30.37	6576.50	99.99%	99.82%	99.63%	99.50%	99.38%	99.20%	99.03%	98.82%	98.62%
MIN	30.06	6554.40	99.98%	99.73%	99.59%	99.47%	99.32%	99.16%	98.96%	98.76%	98.59%
MAX	30.75	6595.60	100.02%	99.85%	99.68%	99.55%	99.42%	99.28%	99.10%	98.89%	98.71%
STDEV	0.21	13.25	0.0001	0.0004	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0004
N	25	25	25	25	25	25	25	25	25	25	25

4.2 Data Set 1: 55°C, 1500 mA (Chromaticity Shift)

Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	54.9°C
Ambient Temperature:	54.6°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L1	0.2472	0.5213	3086	0.0007	0.0009	0.0012	0.0012	0.0014	0.0015	0.0020	0.0023	0.0025
L2	0.2483	0.5206	3095	0.0006	0.0009	0.0010	0.0014	0.0017	0.0015	0.0020	0.0022	0.0026
L3	0.2475	0.5211	3064	0.0007	0.0009	0.0010	0.0015	0.0014	0.0020	0.0022	0.0025	0.0026
L4	0.2468	0.5217	3073	0.0008	0.0010	0.0011	0.0015	0.0017	0.0017	0.0020	0.0022	0.0024
L5	0.2479	0.5203	3085	0.0007	0.0007	0.0012	0.0012	0.0017	0.0016	0.0019	0.0019	0.0022
L6	0.2482	0.5205	3049	0.0008	0.0008	0.0011	0.0012	0.0017	0.0019	0.0019	0.0020	0.0023
L7	0.2472	0.5214	3067	0.0008	0.0009	0.0012	0.0014	0.0016	0.0021	0.0018	0.0021	0.0024
L8	0.2476	0.5210	3072	0.0007	0.0009	0.0011	0.0013	0.0013	0.0016	0.0020	0.0024	0.0022
L9	0.2464	0.5219	3065	0.0006	0.0010	0.0010	0.0014	0.0015	0.0019	0.0018	0.0025	0.0028
L10	0.2487	0.5201	3088	0.0007	0.0010	0.0012	0.0012	0.0015	0.0018	0.0018	0.0025	0.0022
L11	0.2474	0.5212	3092	0.0007	0.0009	0.0010	0.0011	0.0015	0.0016	0.0022	0.0025	0.0025
L12	0.2471	0.5213	3065	0.0008	0.0010	0.0011	0.0014	0.0016	0.0020	0.0019	0.0019	0.0023
L13	0.2469	0.5215	3084	0.0008	0.0009	0.0010	0.0015	0.0018	0.0016	0.0023	0.0023	0.0027
L14	0.2473	0.5211	3092	0.0008	0.0008	0.0010	0.0012	0.0015	0.0020	0.0019	0.0023	0.0026
L15	0.2481	0.5208	3084	0.0007	0.0009	0.0011	0.0015	0.0018	0.0015	0.0021	0.0024	0.0021
L16	0.2474	0.5212	3075	0.0007	0.0009	0.0011	0.0014	0.0016	0.0016	0.0021	0.0020	0.0022
L17	0.2478	0.5213	3083	0.0007	0.0008	0.0009	0.0015	0.0016	0.0019	0.0018	0.0019	0.0021
L18	0.2483	0.5204	3088	0.0007	0.0010	0.0011	0.0013	0.0013	0.0021	0.0019	0.0023	0.0024
L19	0.2472	0.5212	3074	0.0008	0.0007	0.0011	0.0014	0.0018	0.0019	0.0018	0.0023	0.0026
L20	0.2479	0.5209	3056	0.0007	0.0008	0.0011	0.0014	0.0016	0.0017	0.0019	0.0020	0.0022
L21	0.2485	0.5202	3078	0.0007	0.0008	0.0011	0.0011	0.0014	0.0015	0.0019	0.0022	0.0022
L22	0.2474	0.5211	3093	0.0007	0.0009	0.0011	0.0014	0.0017	0.0015	0.0020	0.0023	0.0026
L23	0.2472	0.5213	3065	0.0007	0.0009	0.0010	0.0015	0.0017	0.0017	0.0021	0.0024	0.0026
L24	0.2476	0.5210	3087	0.0008	0.0009	0.0010	0.0015	0.0017	0.0018	0.0021	0.0024	0.0025
L25	0.2471	0.5215	3081	0.0008	0.0009	0.0011	0.0014	0.0017	0.0016	0.0020	0.0022	0.0023
AV	**0.2476**	**0.5210**	**3078**	**0.0007**	**0.0009**	**0.0011**	**0.0014**	**0.0016**	**0.0018**	**0.0020**	**0.0022**	**0.0024**
Median	0.2474	0.5211	3081	0.0007	0.0009	0.0011	0.0014	0.0016	0.0017	0.0020	0.0023	0.0024
MIN	0.2464	0.5201	3049	0.0006	0.0007	0.0009	0.0011	0.0013	0.0015	0.0018	0.0019	0.0021
MAX	0.2487	0.5219	3095	0.0008	0.0010	0.0012	0.0015	0.0018	0.0021	0.0023	0.0025	0.0028
STDEV	0.0006	0.0005	12.31	0.0000	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002
N	25	25	25	25	25	25	25	25	25	25	25	25

4.3 Data Set 2: 85°C, 1500 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	84.8°C
Ambient Temperature:	84.5°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L26	30.75	6592.7	99.99%	99.80%	99.44%	99.28%	98.98%	98.57%	98.44%	98.04%	97.88%
L27	30.08	6587.1	100.00%	99.87%	99.50%	99.16%	98.89%	98.61%	98.40%	98.21%	97.82%
L28	30.21	6554.4	99.96%	99.71%	99.41%	99.15%	99.02%	98.69%	98.38%	98.04%	97.89%
L29	30.42	6575.7	99.97%	99.82%	99.51%	99.23%	98.92%	98.58%	98.50%	98.14%	97.86%
L30	30.68	6586.3	99.96%	99.68%	99.49%	99.29%	98.95%	98.64%	98.46%	98.17%	97.91%
L31	30.15	6584.7	99.98%	99.77%	99.42%	99.20%	98.92%	98.74%	98.36%	98.13%	97.88%
L32	30.74	6595.5	99.97%	99.86%	99.48%	99.20%	98.85%	98.60%	98.46%	98.04%	97.84%
L33	30.06	6557.4	100.00%	99.71%	99.38%	99.25%	98.83%	98.66%	98.42%	98.04%	97.84%
L34	30.29	6578.9	99.98%	99.83%	99.52%	99.30%	98.95%	98.61%	98.50%	98.04%	97.85%
L35	30.68	6592.7	99.98%	99.69%	99.49%	99.17%	99.03%	98.74%	98.47%	98.09%	97.87%
L36	30.15	6587.1	100.00%	99.79%	99.40%	99.19%	99.02%	98.68%	98.48%	98.14%	97.87%
L37	30.23	6554.4	99.97%	99.82%	99.50%	99.25%	98.94%	98.63%	98.42%	98.28%	97.90%
L38	30.54	6575.7	99.98%	99.75%	99.42%	99.24%	99.03%	98.61%	98.37%	98.26%	97.88%
L39	30.11	6564.7	99.98%	99.66%	99.46%	99.30%	98.98%	98.57%	98.38%	98.13%	97.92%
L40	30.29	6559.3	99.99%	99.85%	99.40%	99.23%	98.99%	98.71%	98.46%	98.13%	97.88%
L41	30.55	6576.5	99.99%	99.68%	99.44%	99.21%	98.87%	98.65%	98.43%	98.05%	97.89%
L42	30.32	6586.6	99.97%	99.77%	99.39%	99.24%	98.91%	98.65%	98.49%	98.07%	97.89%
L43	30.09	6593.9	99.99%	99.79%	99.52%	99.15%	98.90%	98.60%	98.45%	98.11%	97.85%
L44	30.13	6570.8	99.97%	99.76%	99.41%	99.21%	98.83%	98.69%	98.40%	98.28%	97.91%
L45	30.47	6568.1	99.96%	99.74%	99.38%	99.25%	98.85%	98.57%	98.43%	98.03%	97.87%
L46	30.68	6592.2	100.00%	99.81%	99.45%	99.28%	98.90%	98.58%	98.40%	98.17%	97.85%
L47	30.15	6573.6	99.99%	99.72%	99.45%	99.16%	98.99%	98.65%	98.38%	98.12%	97.83%
L48	30.74	6584.7	99.97%	99.73%	99.45%	99.17%	98.99%	98.64%	98.49%	98.14%	97.86%
L49	30.68	6595.5	99.96%	99.81%	99.49%	99.25%	98.92%	98.62%	98.50%	98.15%	97.88%
L50	30.15	6576.5	99.97%	99.71%	99.46%	99.28%	98.94%	98.71%	98.38%	98.16%	97.90%
AV	**30.37**	**6578.60**	**99.98%**	**99.76%**	**99.45%**	**99.23%**	**98.94%**	**98.64%**	**98.43%**	**98.13%**	**97.87%**
Median	30.29	6578.90	99.98%	99.77%	99.45%	99.23%	98.94%	98.64%	98.43%	98.13%	97.88%
MIN	30.06	6554.40	99.96%	99.66%	99.38%	99.15%	98.83%	98.57%	98.36%	98.03%	97.82%
MAX	30.75	6595.50	100.00%	99.87%	99.52%	99.30%	99.03%	98.74%	98.50%	98.28%	97.92%
STDEV	0.25	13.13	0.0001	0.0006	0.0004	0.0005	0.0006	0.0005	0.0005	0.0007	0.0003
N	25	25	25	25	25	25	25	25	25	25	25

4.4 Data Set 2: 85°C, 1500 mA (Chromaticity Shift)

Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	84.8°C
Ambient Temperature:	84.5°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L26	0.2472	0.5212	3074	0.0009	0.0011	0.0015	0.0016	0.0018	0.0019	0.0023	0.0029	0.0025
L27	0.2479	0.5209	3056	0.0009	0.0011	0.0016	0.0018	0.0018	0.0018	0.0023	0.0022	0.0029
L28	0.2485	0.5202	3078	0.0009	0.0010	0.0013	0.0018	0.0018	0.0019	0.0026	0.0027	0.0027
L29	0.2474	0.5211	3093	0.0009	0.0012	0.0015	0.0018	0.0021	0.0020	0.0025	0.0021	0.0024
L30	0.2472	0.5213	3065	0.0008	0.0011	0.0011	0.0018	0.0017	0.0023	0.0023	0.0025	0.0030
L31	0.2471	0.5213	3065	0.0009	0.0013	0.0016	0.0018	0.0017	0.0020	0.0024	0.0024	0.0029
L32	0.2469	0.5215	3084	0.0009	0.0012	0.0015	0.0014	0.0021	0.0021	0.0024	0.0028	0.0030
L33	0.2473	0.5211	3092	0.0009	0.0010	0.0012	0.0016	0.0016	0.0019	0.0019	0.0027	0.0029
L34	0.2481	0.5208	3084	0.0008	0.0010	0.0013	0.0018	0.0021	0.0022	0.0020	0.0026	0.0026
L35	0.2474	0.5212	3075	0.0009	0.0013	0.0014	0.0017	0.0018	0.0021	0.0023	0.0026	0.0029
L36	0.2472	0.5212	3074	0.0010	0.0010	0.0015	0.0014	0.0017	0.0020	0.0023	0.0023	0.0028
L37	0.2479	0.5209	3056	0.0010	0.0012	0.0015	0.0017	0.0019	0.0020	0.0019	0.0024	0.0027
L38	0.2485	0.5202	3078	0.0010	0.0010	0.0011	0.0015	0.0016	0.0021	0.0026	0.0026	0.0026
L39	0.2474	0.5211	3093	0.0010	0.0009	0.0013	0.0016	0.0021	0.0021	0.0025	0.0022	0.0024
L40	0.2472	0.5213	3065	0.0010	0.0010	0.0012	0.0015	0.0019	0.0023	0.0020	0.0025	0.0031
L41	0.2474	0.5212	3075	0.0008	0.0011	0.0015	0.0017	0.0019	0.0019	0.0020	0.0025	0.0025
L42	0.2478	0.5213	3083	0.0008	0.0013	0.0014	0.0018	0.0016	0.0018	0.0023	0.0021	0.0025
L43	0.2483	0.5204	3088	0.0010	0.0012	0.0014	0.0017	0.0020	0.0019	0.0021	0.0023	0.0029
L44	0.2472	0.5212	3074	0.0009	0.0010	0.0013	0.0015	0.0018	0.0019	0.0024	0.0023	0.0030
L45	0.2474	0.5212	3056	0.0009	0.0012	0.0012	0.0015	0.0018	0.0018	0.0025	0.0025	0.0030
L46	0.2483	0.5206	3078	0.0009	0.0010	0.0013	0.0015	0.0017	0.0018	0.0022	0.0026	0.0024
L47	0.2475	0.5211	3093	0.0009	0.0011	0.0015	0.0017	0.0018	0.0019	0.0023	0.0026	0.0029
L48	0.2468	0.5217	3065	0.0009	0.0011	0.0014	0.0018	0.0018	0.0019	0.0026	0.0023	0.0029
L49	0.2479	0.5203	3087	0.0009	0.0011	0.0013	0.0018	0.0020	0.0020	0.0026	0.0021	0.0026
L50	0.2482	0.5205	3081	0.0009	0.0012	0.0012	0.0018	0.0020	0.0022	0.0024	0.0024	0.0026
AV	**0.2476**	**0.5210**	**3076**	**0.0009**	**0.0011**	**0.0014**	**0.0017**	**0.0018**	**0.0020**	**0.0023**	**0.0025**	**0.0028**
Median	0.2474	0.5211	3078	0.0009	0.0011	0.0014	0.0017	0.0018	0.0020	0.0023	0.0025	0.0028
MIN	0.2468	0.5202	3056	0.0008	0.0009	0.0011	0.0014	0.0016	0.0018	0.0019	0.0021	0.0024
MAX	0.2485	0.5217	3093	0.0010	0.0013	0.0016	0.0018	0.0021	0.0023	0.0026	0.0029	0.0031
STDEV	0.0005	0.0004	11.72	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
N	25	25	25	25	25	25	25	25	25	25	25	25

4.5 Data Set 3: 105°C, 1500 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	104.8°C
Ambient Temperature:	104.4°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L51	30.68	6570.8	99.91%	99.63%	99.47%	99.01%	98.80%	98.39%	97.98%	97.76%	97.50%
L52	30.15	6568.1	99.97%	99.72%	99.32%	98.97%	98.74%	98.42%	98.15%	97.83%	97.26%
L53	30.23	6592.2	99.96%	99.70%	99.31%	99.05%	98.78%	98.47%	98.18%	97.82%	97.24%
L54	30.54	6573.6	99.92%	99.75%	99.42%	99.07%	98.78%	98.41%	98.10%	97.66%	97.45%
L55	30.11	6584.7	99.91%	99.71%	99.28%	99.08%	98.72%	98.52%	98.15%	97.72%	97.40%
L56	30.13	6584.7	99.97%	99.66%	99.26%	99.18%	98.79%	98.46%	98.02%	97.77%	97.25%
L57	30.47	6575.7	99.97%	99.68%	99.41%	99.02%	98.69%	98.43%	98.07%	97.67%	97.28%
L58	30.68	6564.7	99.89%	99.72%	99.36%	99.01%	98.71%	98.43%	98.17%	97.73%	97.40%
L59	30.15	6592.2	99.93%	99.65%	99.30%	99.03%	98.72%	98.43%	97.95%	97.82%	97.50%
L60	30.21	6573.6	99.95%	99.69%	99.34%	99.03%	98.83%	98.55%	98.16%	97.71%	97.45%
L61	30.42	6584.7	99.92%	99.68%	99.34%	99.18%	98.80%	98.37%	98.16%	97.72%	97.45%
L62	30.68	6595.5	99.98%	99.63%	99.44%	99.15%	98.77%	98.39%	98.18%	97.83%	97.33%
L63	30.15	6576.5	99.98%	99.72%	99.33%	99.07%	98.73%	98.56%	97.92%	97.70%	97.48%
L64	30.74	6592.7	99.93%	99.68%	99.33%	99.10%	98.75%	98.49%	98.18%	97.73%	97.47%
L65	30.29	6587.1	99.90%	99.74%	99.27%	99.04%	98.72%	98.53%	98.07%	97.67%	97.26%
L66	30.55	6554.4	99.96%	99.75%	99.30%	99.15%	98.84%	98.48%	97.99%	97.72%	97.49%
L67	30.15	6575.7	99.99%	99.69%	99.38%	98.97%	98.86%	98.57%	97.95%	97.75%	97.49%
L68	30.23	6586.3	99.99%	99.68%	99.29%	98.96%	98.79%	98.43%	98.12%	97.80%	97.32%
L69	30.54	6584.7	99.91%	99.72%	99.44%	99.04%	98.69%	98.57%	98.06%	97.82%	97.50%
L70	30.11	6554.4	99.90%	99.63%	99.25%	98.99%	98.73%	98.35%	97.96%	97.67%	97.45%
L71	30.29	6575.7	99.96%	99.65%	99.47%	98.98%	98.80%	98.42%	98.04%	97.78%	97.30%
L72	30.09	6564.7	99.97%	99.72%	99.32%	99.00%	98.76%	98.45%	98.16%	97.83%	97.25%
L73	30.13	6559.3	99.93%	99.72%	99.36%	99.06%	98.78%	98.46%	98.16%	97.77%	97.35%
L74	30.47	6576.5	99.92%	99.74%	99.39%	99.08%	98.77%	98.45%	98.13%	97.71%	97.42%
L75	30.68	6586.6	99.94%	99.69%	99.27%	99.09%	98.75%	98.50%	98.06%	97.76%	97.34%
AV	**30.35**	**6577.40**	**99.94%**	**99.70%**	**99.35%**	**99.05%**	**98.76%**	**98.46%**	**98.08%**	**97.75%**	**97.39%**
Median	30.29	6576.50	99.94%	99.69%	99.33%	99.04%	98.77%	98.45%	98.10%	97.75%	97.40%
MIN	30.09	6554.40	99.89%	99.63%	99.25%	98.96%	98.69%	98.35%	97.92%	97.66%	97.24%
MAX	30.74	6595.50	99.99%	99.75%	99.47%	99.18%	98.86%	98.57%	98.18%	97.83%	97.50%
STDEV	0.23	11.81	0.0003	0.0004	0.0007	0.0007	0.0005	0.0007	0.0009	0.0006	0.0010
N	25	25	25	25	25	25	25	25	25	25	25

4.6 Data Set 3: 105°C, 1500 mA (Chromaticity Shift)

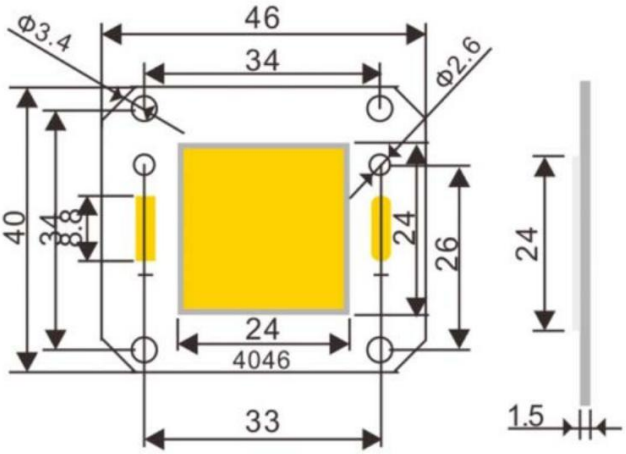
Description of Light Sources Tested:	XC4624-M1010-A3080-F31
Case Temperature:	104.8°C
Ambient Temperature:	104.4°C
Drive Current:	1500 mA
Measure Current:	1500 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L51	0.2472	0.5212	3074	0.0010	0.0011	0.0017	0.0018	0.0022	0.0027	0.0026	0.0031	0.0036
L52	0.2474	0.5212	3056	0.0009	0.0013	0.0014	0.0018	0.0021	0.0028	0.0026	0.0030	0.0033
L53	0.2483	0.5206	3078	0.0011	0.0012	0.0016	0.0017	0.0024	0.0026	0.0026	0.0030	0.0031
L54	0.2475	0.5211	3093	0.0010	0.0011	0.0016	0.0018	0.0020	0.0025	0.0026	0.0029	0.0035
L55	0.2468	0.5217	3065	0.0009	0.0011	0.0015	0.0019	0.0021	0.0026	0.0029	0.0033	0.0033
L56	0.2479	0.5203	3087	0.0009	0.0013	0.0014	0.0019	0.0024	0.0029	0.0029	0.0028	0.0031
L57	0.2485	0.5202	3078	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0026	0.0029	0.0031
L58	0.2474	0.5211	3093	0.0011	0.0012	0.0014	0.0021	0.0023	0.0024	0.0030	0.0031	0.0034
L59	0.2472	0.5213	3065	0.0009	0.0011	0.0017	0.0019	0.0021	0.0024	0.0030	0.0029	0.0032
L60	0.2478	0.5213	3083	0.0010	0.0013	0.0017	0.0017	0.0020	0.0027	0.0031	0.0034	0.0036
L61	0.2483	0.5204	3088	0.0010	0.0013	0.0016	0.0020	0.0024	0.0027	0.0031	0.0030	0.0032
L62	0.2472	0.5212	3074	0.0010	0.0012	0.0015	0.0020	0.0024	0.0024	0.0026	0.0030	0.0032
L63	0.2474	0.5212	3056	0.0010	0.0011	0.0016	0.0017	0.0024	0.0029	0.0028	0.0032	0.0036
L64	0.2483	0.5206	3078	0.0010	0.0011	0.0014	0.0020	0.0020	0.0026	0.0027	0.0033	0.0034
L65	0.2472	0.5213	3065	0.0010	0.0011	0.0014	0.0020	0.0020	0.0029	0.0027	0.0033	0.0032
L66	0.2479	0.5209	3056	0.0011	0.0012	0.0016	0.0019	0.0022	0.0025	0.0031	0.0032	0.0036
L67	0.2485	0.5202	3078	0.0010	0.0012	0.0015	0.0018	0.0022	0.0025	0.0026	0.0031	0.0033
L68	0.2474	0.5211	3093	0.0010	0.0013	0.0016	0.0020	0.0022	0.0027	0.0026	0.0030	0.0035
L69	0.2472	0.5213	3065	0.0009	0.0013	0.0016	0.0020	0.0022	0.0025	0.0026	0.0034	0.0031
L70	0.2471	0.5213	3065	0.0010	0.0012	0.0015	0.0021	0.0023	0.0027	0.0029	0.0029	0.0031
L71	0.2469	0.5215	3084	0.0009	0.0011	0.0014	0.0018	0.0021	0.0024	0.0026	0.0030	0.0035
L72	0.2473	0.5211	3092	0.0010	0.0011	0.0017	0.0018	0.0021	0.0028	0.0026	0.0030	0.0035
L73	0.2481	0.5208	3084	0.0010	0.0012	0.0015	0.0017	0.0023	0.0026	0.0026	0.0030	0.0032
L74	0.2474	0.5212	3075	0.0011	0.0012	0.0016	0.0017	0.0023	0.0026	0.0026	0.0029	0.0034
L75	0.2472	0.5212	3074	0.0010	0.0011	0.0016	0.0019	0.0021	0.0025	0.0028	0.0032	0.0034
AV	**0.2476**	**0.5210**	**3076**	**0.0010**	**0.0012**	**0.0015**	**0.0019**	**0.0022**	**0.0026**	**0.0028**	**0.0031**	**0.0033**
Median	0.2474	0.5212	3078	0.0010	0.0012	0.0016	0.0019	0.0022	0.0026	0.0026	0.0030	0.0033
MIN	0.2468	0.5202	3056	0.0009	0.0011	0.0014	0.0017	0.0020	0.0024	0.0026	0.0028	0.0031
MAX	0.2485	0.5217	3093	0.0011	0.0013	0.0017	0.0021	0.0024	0.0029	0.0031	0.0034	0.0036
STDEV	0.0005	0.0004	11.90	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
N	25	25	25	25	25	25	25	25	25	25	25	25

5 EUT Photo

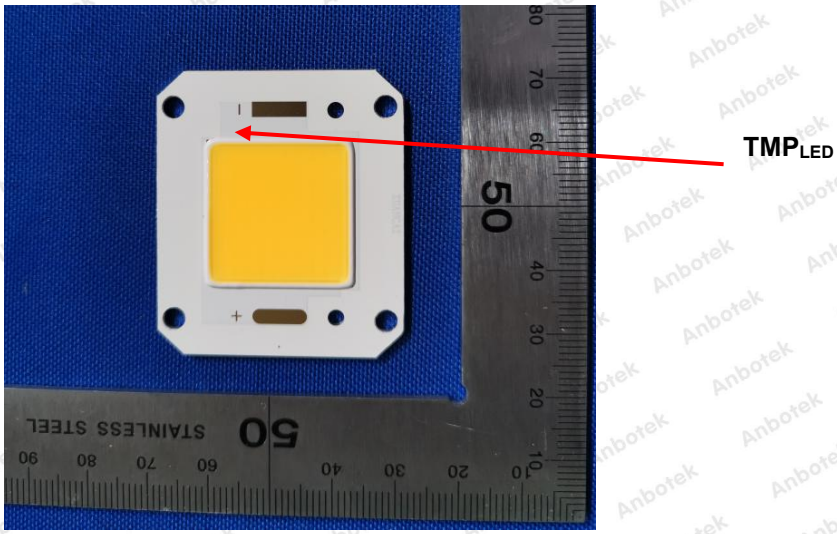
5.1 EUT Mechanical Dimensions



Unit:mm

Tolerances unless otherwise specified:+/-0.2

5.2 EUT PHOTO



*****END OF TEST REPORT*****